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Randomized field experiments in criminal justice agencies

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This article summarizes a March 1987 workshop convened by the National Research Council's Committee on Research on Law Enforcement and the Administration of Justice and sponsored by the National Institute of Justice. The National Research Council is administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

Over the years, scientific knowledge has been a major weapon in the fight against crime. One technique, the randomized field experiment, has recently achieved some prominence for its potential to transform scientific findings into immediate practical knowledge.

To illustrate: In 1982 the Minneapolis Police Department conducted an experiment that required police officers responding to domestic assaults to follow a predetermined procedure that randomly selected one of three actions: arrest the offender, offer advice to the offender or victim, or order the offender off the premises. Arrest appeared to be more effective in forestalling future assaults than either of the other two strategies. Other experiments have tested the efficacy of different sanctions for drunk

driving, the value of providing financial support to parolees, and the use of electronic supervision of arrestees pending trial.

In randomized experiments, the intervention is assigned to persons, cases, or other units according to a random schedule. That is, each person, case, or other unit has the same probability as any other of being assigned to either the intervention or the control group. This procedure ensures that the differences in outcomes can be attributed to the interventions rather than to any characteristics of the units themselves.

Quasi-experiments are another technique used to compare outcomes for units that received an intervention with outcomes for units that did not, but there is an important difference: randomization is not used in their assignment. Statistical techniques such as regression analysis, time-series analysis, and analysis of variance must be used to adjust for systematic differences between the units themselves that may contribute to differences in outcomes.

The workshop is convened

To explore these techniques, a distinguished group of criminal justice researchers, practitioners, and policymakers attended a March 1987 workshop on randomized field experiments conducted by criminal justice agencies. The workshop was convened under the aegis of the National Research Council's Committee on Research on

Law Enforcement and the Administration of Justice, with support from the National Institute of Justice, U.S. Department of Justice. A total of 90 people attended the workshop, which was planned by the Working Group on Field Experimentation in Criminal Justice. The Working Group consisted of four committee members and four other members selected for their knowledge of randomized experiments and quasi-experiments in criminal justice research.

The workshop had four major purposes:

1. To share perspectives among researchers and policymakers on promising experimental and quasi-experimental techniques for research aimed at providing a practical knowledge base for improving criminal justice administration.
2. To disseminate and discuss results and insights from randomized field experiments and quasi-experiments in policing, prosecution, court decision-making, and offender supervision.
3. To discuss issues that arise in planning and conducting field experiments, including choosing of topics, potential legal and ethical problems, the exigencies of day-to-day management, methodological issues, and the interpretation of results.
4. To provide a forum for practitioners, research sponsors, and researchers to exchange views on future prospects for experimental research in criminal justice.

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The workshop presentations in plenary sessions focused on specific experiments as well as on such broad topics as "Uses and Limits of Experiments," "Legal and Ethical Issues," and "Alternatives to Randomized Experiments." (Transcripts of the presentations are included in the full report on the workshop.) In two followup discussion periods, the participants worked in smaller groups that focused on four specific areas of criminal justice practice: policing; pretrial release, prosecution, and diversion; adjudication and sanctioning; and offender supervision. The goal of each discussion group was to identify promising experiments and to discuss design, implementation, and management issues that could arise in conducting experiments.

A central message emerging from the presentations and discussion sessions was that changes in the criminal justice system occur both gradually, sometimes in response to changing social science understanding of crime problems, and on occasion more rapidly, as the system is pressed to do something about perceived crises. In either case, however, the changes typically reflect commonsense views of reality rather than the systematic observation and testing of alternative programs and procedures. These commonsense views need to be tested and complemented by systematic, reliable knowledge to guide crime control.

Sociologists, economists, psychologists, and others have traditionally applied their disciplines' usual methodological approaches to expand knowledge about criminal justice. These methodologies include laboratory experiments, ethnographic investigations, regression analysis, and various techniques of causal modeling. Each technique has its place, and together they are essential to a full understanding of crime and the criminal justice system.

Experiments are a timely topic

The randomized field experiment has two major advantages: The first is that treatments are delivered by and to the same types of people who are involved in the ordinary workings of the criminal justice system. The second is that randomization is an efficient control for many idiosyncratic factors that might otherwise plausibly explain the apparent impact of a criminal justice intervention. One reason that experimentation has been rare in the past is that, more than any other technique, it requires close cooperation between social science researchers and those who operate criminal justice organizations. For these reasons, a conference bringing together criminal justice researchers and practitioners to discuss this topic was timely, appropriate, and potentially useful.

The group attending the workshop was somewhat larger than originally anticipated, a reflection of the burgeoning interest in field experiments in the practitioner and scholarly communities. The 25 speakers and discussion leaders included researchers, State and local criminal justice practitioners, and Federal officials. Attendees from the practitioner community included police officials, pretrial service managers, district attorneys, judges, court administrators, and probation officials. The audience included practitioners and researchers who had conducted randomized field experiments, or who were actively considering this option, as well as people who were less knowledgeable yet interested in this research technique.

Among the background materials for the workshop were 20 commissioned synopses of criminal (and a few civil) justice experiments. Each synopsis provided a two-paragraph summary of the purpose and results of the experiment and other details, including target group, type of treatments, assignment method, outcome measures, and reported implementation problems. This work provided attendees with a convenient assembly of information on criminal justice experiments. (The summaries are included in the full report of the workshop proceedings.) The other materials distributed in advance of the workshop were published articles about research design (Diamond 1987), nonexperimental criminal justice research (Chambers 1977; Pierce and Bowers 1981), and ethical issues in experimental research (Meier 1972; Shapard 1985).

Discussion focuses on nine themes

Nine themes emerged from the workshop, which collectively might be considered guidelines for running randomized field experiments or important lessons for future experimentation in criminal justice. These themes are not intended to address all the substantive and methodological issues that must be considered in designing and carrying out field experiments. Rather,

they provide a brief perspective on the issues that emerged as especially important during workshop discussions.

1. Choose an interesting problem—a policy question that people really care about or an existing procedure that clearly needs improvement.

Although experiments need not be costly, they often are, imposing burdens on administrators, usually requiring the assistance of personnel in criminal justice organizations, and possibly imposing burdens on experimental subjects. Field experiments should therefore not be undertaken on unimportant issues. Field experiments are particularly helpful for choosing among competing options and for resolving uncertainty about the right choice. Choices of questions and options should reflect community attitudes and values as well as the interests of criminal justice practitioners and researchers.

2. Legal and ethical issues that may arise in criminal justice experiments can usually be solved by creative thinking, alternative design strategies, compromise, and some foresight about potential problems.

Many of the legal and ethical issues that surround experiments arise first at the design stage and can usually be cooperatively resolved within the experimental setting. Although the problems seldom admit of standard solutions, certain basic principles apply. One is that the research design should impose the fewest burdens on those whose cooperation is needed to answer the questions it addresses. A second is that the impact and costs of the proposed intervention must be weighed not only against the costs of having only anecdotal or more equivocal knowledge about the effectiveness of interventions, but also against the costs of continuing current programs and policies that are potentially ineffective or counterproductive.

Perhaps the most common ethical and political hurdle faced by investigators is that the nature of field experiments demands that similarly situated actors be

treated unequally. It is generally conceded that this is not a serious problem if the intervention treats subjects less harshly than does the status quo (e.g., a random sample of persons who ordinarily would be jailed are given intensive supervised probation). Indeed, if an agency's resources are inadequate to deliver a treatment to all members of an eligible population, randomized allocation of the treatment is often regarded as a fair approach, totally apart from the fact that it creates the possibility of important gains in knowledge. Even randomized imposition of strong sanctions may sometimes be justified, especially in situations in which, without the experiment, a new, harsher approach might be extended to all.

3. To achieve the full advantages of experimentation, the random assignment of persons, cases, or other units into treatment and control groups must be rigorously maintained throughout the experiment. Deviations from strict randomness should be monitored and noted.

Random selection is not biased, is not arbitrary, and in a variety of circumstances has been upheld by the courts as an appropriate research tool to achieve certain goals, including assessing and improving program effectiveness. But complete randomization is difficult to achieve. Ethical or legal considerations may pose barriers to certain kinds of randomized manipulations, and efforts

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under day-to-day pressures to carry out randomization inevitably involve some errors in assignment. Nevertheless, considerable success may be achieved by close cooperation between researchers and practitioners. To the extent the randomization efforts fall short, statistical techniques may sometimes produce valid conclusions despite the errors. The potential for damage control is greater if possible failures of randomization are anticipated so that they can be taken into account in the experimental design.

4. Not all research problems are suitable for randomized field experimentation. The choice of designs and methods of investigation turn on both the questions to be answered and the available data. Quasi-experimental and other retrospective techniques may be more economical or more viable ways of addressing some research problems, and nonquantitative methods such as ethnographic investigation may be appropriate for other questions.

The appropriate research strategy will depend on what must be evaluated, the conditions of the intervention or innovation, and previous theoretical and empirical work. New laws, for example, typically apply unconditionally, thereby precluding randomized experiments, but quasi-experimental time-series designs may provide a good measure of their effects. Ethical concerns may preclude some randomized treatments (e.g., those involving very severe sanctions), but the systematic study of natural variation may reveal salient effects. For some questions, very different research approaches may be more appropriate. For example, if we wish to learn how to break up drug dealer networks, the infiltration and observation of such networks may be an important first step.

5. From the outset of study design and planning, field experiments require continued teamwork and close cooperation between researchers and practitioners. Failure can be unwittingly designed into an experiment before it begins.

Field experiment designs need to fit local practices. Cooperation must therefore begin with the initial design of the experiment. It is important to involve all key personnel in the project as early as possible; they should understand the nature of the experiment and its potential importance. Since experiments will require some organizational change, at least temporarily, incentives should be built in to secure the cooperation of the staff who must apply the experimental treatments. The success of an experiment is directly related to the commitment of all participants from beginning to end.

However, close involvement of researchers and practitioners may have an unanticipated consequence. Awareness of being involved in an experiment may lead people to perform differently, perhaps more effectively, than they would if they were administering the intervention as part of a daily routine. This phenomenon is known as the "Hawthorne effect," named after a series of experiments at the Hawthorne Electric Plant that revealed that the experience of being separated out for experimental treatment in itself could improve performance, apart from whether the intervention was positive or negative.

If subjects or implementers of a field experiment are affected by the novelty of the experience, then it is less likely that the experimental effects will recur in jurisdictions that adopt the policy or in the test jurisdiction once the intervention becomes a part of normal operations. A careful design will check for the existence of Hawthorne-like effects. When these effects are identified, statistical modeling may allow the researcher to correct for their implications.

6. What one gets out of experiments depends on what one puts into them.

Experimentation is not an easy research method; it takes time, effort, and careful attention to anticipate and avoid problems and to emerge with results that can stand up to scrutiny. One must begin with a sensitive understanding of the

field situation and the wisdom that practitioners have acquired over the years. Good experimental design requires that practitioners and researchers work together from the start.

The requirements of good design include the selection of problems that lend themselves to experimentation; procedures to ensure close adherence to the randomization plan (perhaps being carried out by a neutral or "blind" observer); the need to understand the proposed treatment and what it entails before the experiment begins; possible pilot tests of treatment procedures or a short trial-run period; the measurement of relevant outcomes in multiple ways (e.g., through records, interviews); a clear definition of the proposed target group and advance investigation of its size (the number of potential experimental subjects is often overestimated). When these requirements are met, the resulting payoffs are likely to be especially high because one has special confidence in attributing effects to policies being tested.

7. The purpose of experimentation in criminal justice is to inform policy, not to make policy. Experiments provide information about policy options, but policies often have several goals, so experimental results are rarely sufficient for selecting the "correct" policy.

A common result in field experiments is that the new program or procedure being tested has no measurable effect. Such negative results must, like positive results, be treated cautiously because potential effects may not have been adequately measured. If the finding that an innovation has no effect proves valid, it can be extremely useful. For example, an experiment may demonstrate that the existing policy is actually superior to proposed innovations or show that two programs are equally effective, although one might be less costly. At the other extreme, finding a substantial experimental effect of a new program also does not resolve policy problems. The policy-maker must still weigh costs and values. For example, an experiment might reveal

that jailing speeders rather than fining them has a substantial deterrent effect, but the policymaker still must decide whether incarcerating speeders is a wise use of scarce jail space.

8. Experiments involve political risks that must be understood and confronted.

Those who conduct experiments will face accusations that they are playing with people's lives—introducing differential treatment into a system that is supposed to vigorously pursue equality of treatment. Such accusations are legitimate expressions of fundamental social values and may call attention to experiments whose objectives fail to justify the social or individual costs they impose. But such objections should not be either made or accepted mechanically. It is too easy to overlook the fact that maintaining the status quo is also a form of treatment, and that inconsistent responses to people and situations (e.g., discretion) occur throughout the criminal justice system.

Experimentation may systematize decisionmaking and also allow policymakers to learn from variations that would in the usual course occur haphazardly. While field experiments may seem radically innovative, introducing innovations experimentally rather than universally is often a conservative procedure, for it allows the criminal justice system to abort plausible policy changes that turn out to be wasteful or counterproductive. The decision not to experiment, like the decision to experiment, has its political aspects, and objections to experiments should be weighed against the costs of refusing to proceed in this way.

9. Replicating studies is critical to ensuring that the results will generalize to other locations and is usually necessary to justify widespread implementation of experimentally successful treatments.

Communities differ in terms of their demographic, organizational, and

political characteristics, as well as in their decisionmaking about criminal justice policies. The results of research in one community may reflect the interaction of a treatment with these specific characteristics. This is particularly difficult to control in criminal justice, because the effects of an innovation by one agency, such as the police, may be intimately tied to the behavior of other agencies, such as the prosecution or the courts. Replications help to point out such possible links. Moreover, if experimental results are due to Hawthorne-like effects, as discussed earlier, generalizations of findings to other communities may be misleading and the results may even disappear in the experimental community when the treatment is introduced on a larger scale and implemented by the regular operating system. If an experiment fails to replicate, researchers and policymakers alike are alerted to the need to search for those factors that led to the initial experiment's success (or failure). If experimental results are replicated in a variety of settings, new sites can implement the innovation with some confidence that it will work as intended.

Priorities for future research

The closing session of the workshop addressed future prospects for randomized experiments in criminal justice from three perspectives: a practitioner (Malcolm MacDonald, American Probation and Parole Association and Texas Adult Probation Commission), a Federal research sponsor (James K. Stewart, National Institute of Justice), and a quasi-governmental corporate sponsor of State and local justice innovations (David Tevelin, State Justice Institute).

Although these speakers emphasized slightly different priorities for future research, their messages contained similar themes. All three speakers stressed that the need to ascertain whether successful experimental programs are effective in different types of communities means that researchers,

practitioners, and funding agencies should place a high priority on replication. They reminded the attendees that a thorough knowledge of the specific target population, the program objectives, and the treatment or intervention strategies is important not only to successfully conducting a randomized field experiment, but also to implementing programs based on others' research results.

Important topics for randomized field experiments in criminal justice appear almost limitless. Some of the areas that the workshop participants identified as particularly promising include procedures for imposing, collecting, and enforcing fines; educational programs for convicted offenders; the use of offender classification systems in decisionmaking; police resource allocation; and alternatives to incarceration. Since tackling these and other criminal justice problems will often require coordinated interventions involving more than one criminal justice agency, programmatic experimental research and effective treatment strategies are likely to involve the extensive cooperation of key actors in the criminal justice system.

In his concluding remarks, Stewart emphasized that it is in the best interests of the criminal justice community—both practitioners and researchers—to be receptive to experimentation. In this era of tight fiscal resources, we must avoid the costs of adopting new technologies and policies that may not be effective. The time has come, Stewart said, to move the criminal justice community from a craft—which bases its knowledge on tradition, "seat of the pants" technologies, and intuition—to a profession in which decisions are based on sound research involving testing and replication.

Criminal justice field experiments are one of a variety of research techniques that are tending to move the criminal justice community in this direction. The conference attendees recognized that, even as a technique for acquiring knowledge, the field experiment is not a panacea, but they agreed that among the research tech-

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niques likely to add to usable knowledge, the criminal justice field experiment is a particularly promising one.

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The full report of the workshop proceedings may be obtained in microfiche or borrowed from NIJ's National Criminal Justice Reference Service (NCJRS) through the Document Loan Program. Ask for Randomized Field Experiments in Criminal Justice Agencies: Workshop Proceedings (NCJ 108719). Write National Institute of Justice/NCJRS, Box 6000, Rockville, MD 20850 or telephone 800-851-3420 (from Maryland or Metropolitan Washington, D.C., dial 301-251-5500).

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